OPTICAL FREQUENCY MODULATION METHOD RANGE FINDER

Patent number: JP2002005614
Publication date: 2002-01-09
Inventor: ISHIOKA MASATO
Applicant: MITSUBISHI HEAVY IND LTD
Classification:
- International: G01B9/02; G01B11/02; G02F1/11; H01S5/12; H01S5/14
- european:
Application number: JP20000188006 20000622
Priority number(s):

Abstract of **JP2002005614**

PROBLEM TO BE SOLVED: To provide an optical frequency modulation method range finder where an FSF light-source configuration is simplified for reducing cost, while degradation in sensitivity caused by the conventional multi-mode oscillation is prevented.

SOLUTION: A laser resonator comprises a rear end surface 28 of a semiconductor laser 20 and a mode selector element 27. The optical output from the semiconductor laser 20 is guided into an acousto-optical element 23 via a lens 26, and ultrasonic wave 30 is excited in the acoustic optical element 23, when applied with signal f0 from an AOM modulating signal source 22. At the acoustic optical element 23, Brag diffraction phenomenon occurs to split it into zeroth-order beam 25 and first-order diffracted beam 24, with the first-order diffracted beam 24 being outputted while deviating by f0 in optical frequency due to the Doppler frequency shift. The first-order diffracted beam 24 has Fabry-Perot resonator condition, which only reflects arbitrary one oscillation mode component with the mode selector element 27, whose reflection leads it into the acousto-optical element 23 to undergo the Doppler frequency shift, resulting in feedback to the semiconductor laser 20.